Chapter 2
How to Use This Manual

1-1. Introduction

Designing an air monitoring program for a HTRW site is not a difficult task if one approaches the project in a systematic way. The real difficulty lies in selecting the most appropriate approach, establishing the data quality objectives (DQOs), and selecting the proper sampling and analytical methodology. As with other monitoring programs, no two HTRW sites have the same site characteristics and project demands. Consequently, a successful project requires proper planning and organization for the collection of accurate and reliable data. Planning and organization are essential to attaining the data collection goals of minimizing data collection costs and ensuring that data are defensible, and are of known and acceptable quality to meet the needs of the primary data user (decision maker).

Figure 2-1 depicts the major project planning and execution steps needed in the successful design of a FFMS at a HTRW site. This approach should be thought of as a flow chart or a guide that is useful, but not necessary, to follow steps sequentially. This Chapter depicts (explains) how personnel responsible for air monitoring at HTRW sites may use this EM to select and design the FFMS technology and to implement it as part of air monitoring program. The relationship of various paragraphs of this EM to a project=s planning and execution steps in implementing this program is discussed below.

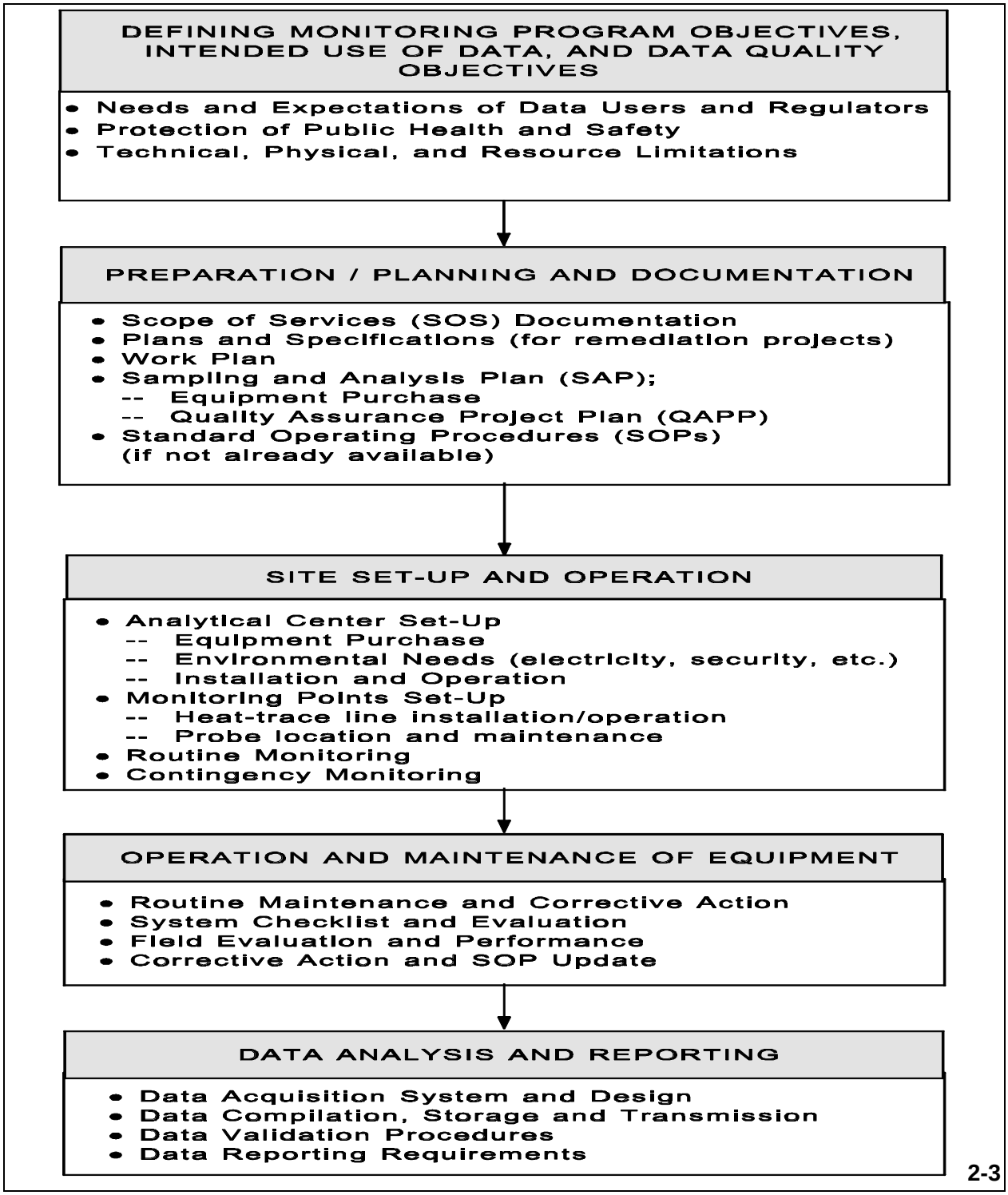
1-2. Defining Monitoring Program Objectives, Intended Use of Data, and Data Quality Objectives

This EM can assist with the initial planning phase of a project by helping to identify monitoring program objectives, intended use of the data, and project DQOs. Although the EM itself cannot determine the specific objectives and data uses for a given project, it defines the capabilities of applicable technology, thereby ensuring that a project's objectives and data uses are realistic and achievable for the selected measurement system. For example, if one objective of a project is to measure minute quantities of some trace contaminant, the EM can help determine whether system detection limits are sufficiently low to allow measurement of the contaminant within acceptable accuracy and precision limits.

Paragraphs of the Manual that may be most useful during the initial planning phase of a project include:

- **$** 3-2 Data Quality Objectives.
- **$** 3-3 Regulatory Limits, Action Levels, and Site Specific Alert Levels and Triggering Mechanism.
- **$** 3-5 Chemical and Physical Properties of Hazardous Air Pollutants.
- **$** 3-6 Technical Considerations in the Development of a FFMS.
- **$** 7-0 Data Management.

$ 8-2 Quality Planning.


DEFINING MONITORING PROGRAM OBJECTIVES, INTENDED USE OF DATA, AND DATA QUALITY OBJECTIVES
• Needs and Expectations of Data Users and Regulators
• Protection of Public Health and Safety
• Technical, Physical, and Resource Limitations
PREPARATION / PLANNING AND DOCUMENTATION
• Scope of Services (SOS) Documentation
• Plans and Specifications (for remediation projects)
• Work Plan
• Sampling and Analysis Plan (SAP);
-- Equipment Purchase
-- Quality Assurance Project Plan (QAPP)
• Standard Operating Procedures (SOPs)
(if not already available)
SITE SET-UP AND OPERATION
• Analytical Center Set-Up
-- Equipment Purchase
-- Environmental Needs (electricity, security, etc.)
-- Installation and Operation
• Monitoring Points Set-Up
-- Heat-trace line installation/operation
-- Probe location and maintenance
• Routine Monitoring
• Contingency Monitoring
OPERATION AND MAINTENANCE OF EQUIPMENT
• Routine Maintenance and Corrective Action
• System Checklist and Evaluation
• Field Evaluation and Performance
• Corrective Action and SOP Update
DATA ANALYSIS AND REPORTING
• Data Acquisition System and Design
• Data Compilation, Storage and Transmission
• Data Validation Procedures
• Data Reporting Requirements

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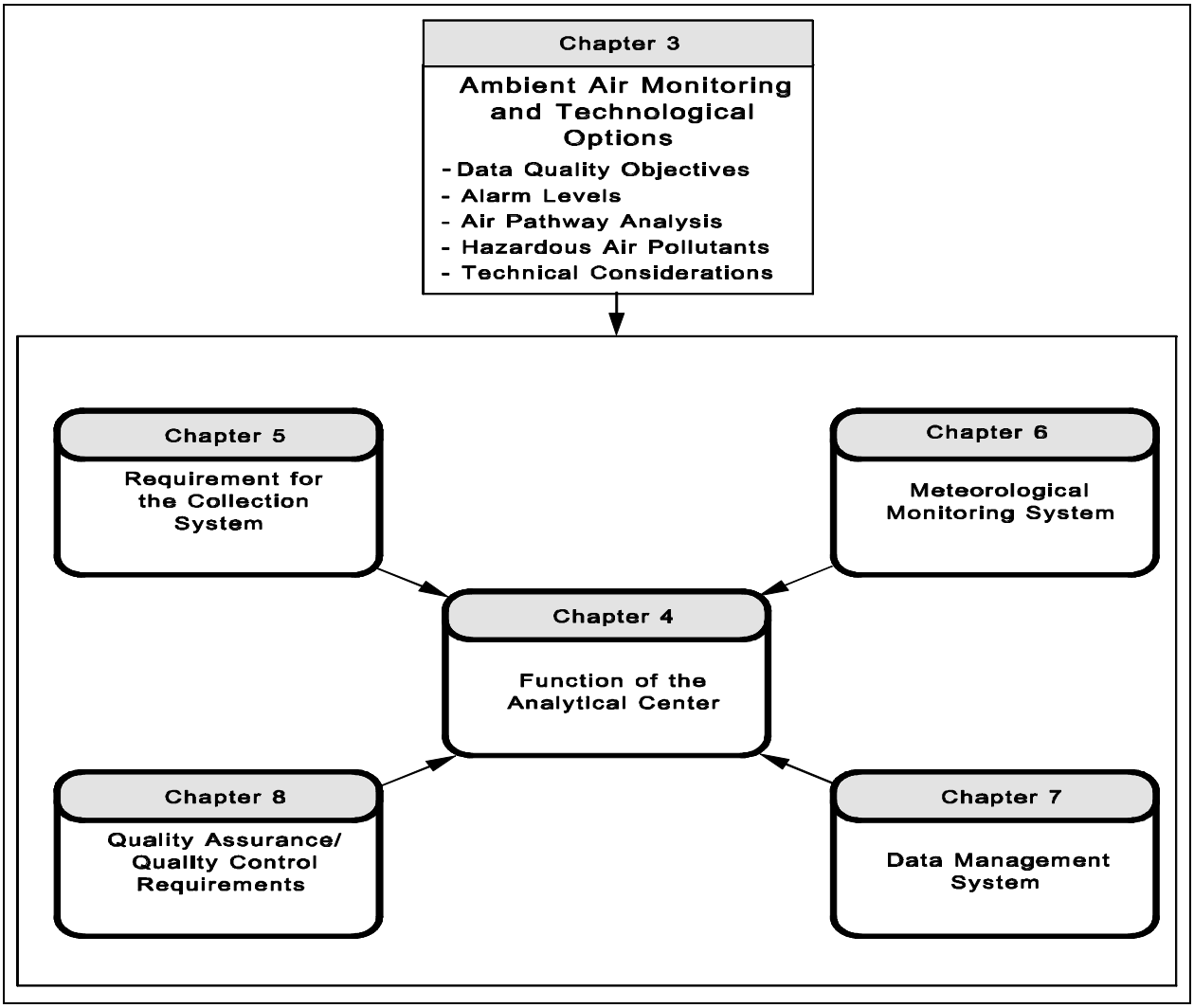
1-3. Preparing Planning and Execution Documents

This EM can serve as a valuable tool in preparing the various planning and execution documents that are required before field work commences. This EM is useful in preparing the SAP, consisting of the FSP and the QAPP, and



SOPs. Additionally, it may be appropriate under certain circumstances to incorporate by reference portions of this EM into certain planning and execution documents. Figure 2-2 depicts the relationship between key chapters of the EM and the critical elements in designing, implementing, and operating a FFMS at a HTRW site, while Table 2-1 cross-references the manual with specific project planning and execution steps.

TABLE 2-1
Relevance Of Manual Chapters To Project Planning And Execution Steps

Manual Chapters		Program Objectives, Intended Use of Data, and DQOs	Planning and Execution Documents	Site Set-Up and Operation	Operation and Maintenance of Equipment	Data Analysis and Reporting
1.	Introduction	!				
2.	How to Use This Manual	!				
3.	Monitoring Objectives and Technical Options	!	!			
4.	Function of the Analytical Center		!	!	!	
5.	Requirements for the Collection System		!	!	!	
6.	Meteorological Monitoring System		!			
7.	Data Management System		!			!
8.	Quality Control Requirements	!	!	!	!	!
Appendices						
A.	Abbreviation/ Acronyms and Glossary	!				!
B.	References		!			!
C.	Guidelines for Developing Standard Operating Procedures (SOPs) for Fence-Line Monitoring		!			
D.	National Technical Guidance Series, Bulletin Boards, and Electronic Data Bases		!			
E.	Conversion Factors for Common Air Pollution Measurements and Other Useful Information		!			!
F.	Manufacturers of Sampling and Analytical Equipment		!			
G.	Development of Target Compound List	!				

1-4. Site Set-Up and Operation

Even with good planning, challenges in the field will still occur. The sections of the Manual that address site set-up (especially in Chapter 4, *Function of the Analytical Center*, and Chapter 5, *Requirements for the Collection System*) are intended to help avoid unpredictable events through implementation of a careful planning process that has been implemented at previous HTRW projects. Additionally, Paragraph 8-4 contains a discussion of *Special concerns*, in which some common operational challenges are described and recommendations made for avoiding them during site set-up are presented.

1-5. Operation and Maintenance of Equipment

Paragraphs in Chapter 4, *Function of the Analytical Center*, and Chapter 5, *Requirements for the Collection System*, describe critical operating parameters and provide guidance on the operating and maintenance procedures needed to ensure the success of the program. Chapter 8, *Quality Assurance/Quality Control Requirements*, describes the checks and audits needed to demonstrate whether the correct operating and maintenance procedures have been followed.

1-6. Data Analysis and Reporting

Automated data acquisition systems are essential due to the large volume of data collected and the frequent need for quick turn-around in analyzing data and reporting results. Chapter 7, *Data Management System*, discusses the design and operation of these systems and the preferred procedures for documenting data and reporting results. Also discussed in Chapter 7 are calibration and validation procedures, data quality assessment, and reporting. The characterization of data quality, including the use of QC samples and data quality indicators, is described in Chapter 8, *Quality Assurance/Quality Control Requirements*. Finally, Appendix E, *Conversion Factors for Common Air Pollution Measurements and Other Useful Information for HTRW Sites*, provides useful information for manipulating and reporting data.